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# A Multi-level Approach to Perceived Risks of Medical Tourism Service and Purchase Intention: An Empirical Study from Korea

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## Abstract

Due to the lack of information, medical tourists are regarded to be at high risk. Prior medical tourism research has found that various types of perceived risks have a significant impact on medical tourists' purchase behavior. Even though medical tourism is predicted to increase, there is a lack of behavioral research to explain how perceived risks affect medical tourists' purchase behavior. In the context of Korean medical tourism, this study attempts to evaluate the effects of multi-level (macro, organizational, and personal) factors on medical tourists' perceived risks and purchase intentions. A conceptual model and hypotheses were built and empirically validated to investigate links between multi-level characteristics, perceived risks, and purchasing intentions. The data for this study was collected from Chinese tourists using a questionnaire. The impact of cognitive country image, affective country image, and medical service quality on fundamental risk is confirmed by statistical testing. Surprisingly, expectancy discrepancy risk is influenced only by cognitive country image and information search capabilities. Both fundamental and expectation discrepancy risks lower medical tourists' purchase intentions. The findings of this study show that a multi-level strategy is required to investigate the links between perceived risks and medical tourism purchasing intentions based on macro, organizational, and personal factors.

**Keywords:** Perceived Risk, Medical Tourism, Country Image, Medical Service Quality, Information Search Capability

**JEL Classification Code:** I11, I12, L83, M16, M31

## 1. Introduction

International medical tourism is a worldwide trade of medical services. The growth of medical tourism has brought opportunities and challenges for the tourism industries of many countries, including Hong Kong (Heung et al., 2011), Lithuania (Perkumiene et al., 2019), the United Arab Emirates (Al-Talabani et al., 2019), and Vietnam (Vu et al., 2020). To deal with the opportunities and challenges of medical tourism, countries that promote medical tourism explore enhancing or prohibiting factors

of the medical service (Momeni et al., 2018). One of the well-known prohibiting factors in medical tourism is perceived risks as it negatively influences medical tourists' visit intentions or their satisfaction (Perkumiene et al., 2019). In medical tourism, perceived risks refer to the likelihood of medical tourists' being susceptible to injury or loss (Chien et al., 2017). Medical tourism is expected to grow (Cooper et al., 2015) and prior research calls for increased attention on the role of perceived risks on medical tourists' behavior (Khan et al., 2017). Even though people want to use a foreign medical service, it is relatively expensive and difficult to collect reliable and sufficient information on service providers and foreign medical institutions. Medical tourists face a relatively high-perceived risk due to information uncertainty.

There are various types of perceived risk influencing medical tourists' decision-making. Reisinger and Mavondo (2005) suggested seven varieties of risks: financial, functional, physical, social, psychological, satisfaction, and time risks. Other studies identified additional types of risks, such as cultural risks (Fuchs & Reichel, 2004),

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political risks (Sönmez & Graefe, 1998), and terrorism risks (Fuchs & Reichel, 2010). Previous works help understand the multiple attributes of the risk. However, it is nothing but a simple listing of the perceived risk. For more advanced research, relationships among the various types of risks should be explored.

This paper classifies various types of perceived risks into three different categories of risks. This study takes a multi-level approach to explore macro, organizational, and personal factors that influence medical tourists' perceived risks. For example, a physical risk (inflicting injury or physical damage) arises when a medical service quality, provided by a medical institution or a staff member, falls short of a patient's expectations. Thus, its source is associated with the organizational aspects of medical institutions. On the contrary, a cultural or a political risk closely relates to the cultural differences or political instability of a country in which medical service is provided. The sources of these risks are associated with the macro factors of a country.

Therefore, this study proposes and empirically investigates a conceptual model to logically derive multi-level explanatory factors in the Korean medical service that affect medical tourists' perceived risks and purchase intentions. The findings of this study contribute to the formulation of strategies and the sustainable development of Korean medical tourism.

## 2. Literature Review

### 2.1. Type of Perceived Risks

Prior research identified various types of perceived risk. Schiffman and Kanuk (1991) identified seven types of risk in consumer behavior literature, which included financial (losing or wasting money if the service goes wrong), functional or performance (not performing, not delivering benefits to customers, or not meeting the customers' needs and requirements), physical (inflicting injury or illness), social (losing personal and social status, appearing unfashionable, or lowering status), psychological (damaging self-image or reflecting poorly on personality), satisfaction (not delivering satisfaction), and time (not performing on time, taking too much time, or wasting time).

In addition, Roehl and Fesenmaier (1992) found seven perceived risks that affected travel: organizational risk, financial risk, physical risk, health risk, satisfaction risk, social risk, and temporal risk. Sönmez and Graefe (1998) added three additional risks: health risk, political instability, and terrorism risk. Laroché et al. (2004) also listed five types of risks, which included time risk (time loss), financial risk (value of money paid), psychological risk (fear and tension), and social risk (evaluation of people nearby). Recently, Reisinger and Mavondo (2005) suggested seven varieties of

risks: financial, functional, physical, social, psychological, satisfaction, and time risks. Other studies identify additional types of risk: cultural (Fuchs & Reichel, 2004), political risks (Sönmez & Graefe, 1998), and terrorism (Fuchs & Reichel, 2010).

### 2.2. Effects of Perceived Risk on Medical Tourism

Perceived risk plays an important role in determining customer behavior including online shopping (Tham et al., 2019). Dowling and Staelin (1994), for instance, demonstrated the relationship between consumers' feelings of uncertainty and the negative consequences associated with the services provided. It is also considered a significant influence on travel intentions in the tourism industry (Pangaribuan et al., 2021; Perkumien et al., 2019). However, there is a paucity of behavioral research to explain the influence of perceived risks on the behavior of medical tourists, despite the growing interest in both the medical tourism industry and the academic community (Khan et al., 2017).

Prior medical tourism research identifies the negative effects of perceived risks on medical tourists' visit intentions and satisfaction (Na et al., 2017). The perceived risks associated with medical tourism have negative effects on medical tourists' purchase intentions. According to Khan et al. (2017), perceived risk negatively influenced medical tourists' purchase behavior. They investigated the negative effects of perceived risk on destination image based on sub-Saharan African medical travelers. Fuchs and Reichel (2010) also suggested six types of perceived risk in medical tourism, which included human-induced risk, financial risk, service quality risk, socio-psychological risk, natural disasters and car accident risk, and food safety problems and weather risk. They identified the medical tourist group was more risk-averse than comparison groups.

In addition, Taheri et al. (2021) investigated the effects of perceived value on medical tourists' word of mouth intentions. Perceived risks in the medical tourist context are similar to those in the tourism context, but idiosyncratic risks are added that are closely related to medical treatment, hospital facilities, and the expertise of the medical staff.

### 2.3. Classification of Perceived Risks

Previous studies have suggested various types of perceived risk (Fuchs & Reichel, 2010). If a medical service fails, the typical negative effects are physical (inflicting injury or physical damage), functional (not delivering expected benefits to tourists), social (losing personal and social status), psychological (damaging self-image), political (unsafe due to political instability of a destination country), cultural (inconvenient and uncomfortable in food, accommodation, and communication because of cultural

differences between home and a destination country), and risks of terrorism (being targets of terrorist attacks in a destination country).

These seven risks in prior research can be classified into three groups as shown in Figure 1: fundamental (physical), expectation discrepancy (functional, psychological, and social), and macro (cultural, political, and terrorism) risk. The seven risks are classified according to the sources (or antecedents) of risks, and their causal relationships.

First, a fundamental risk occurs when a medical service fails to achieve the desired effect and results in physical damage. It arises from a lack of competence or the malpractice of medical service providers, as well as outdated equipment or facilities in medical institutions. An example of fundamental risk is a physical risk. Sources of this risk mostly include medical organization-related factors, which determine the medical service quality.

Second, expectation discrepancy risk includes functional, psychological, and social risk. These three risks have a commonality and arise when an expectation discrepancy is anticipated or felt by a medical tourist. Expectation discrepancy risk refers to a risk that the medical service is not as effective as expected. Customers have expectations of the product before purchasing and compare expectations with their after purchase evaluation, as supported in the expectation confirmation model (Oliver, 1980). Even when the same medical service is provided, discrepancies tourists feel differ depending on personal characteristics. Expectation risk, therefore, varies across personal factors such as risk avoidance tendency and availability of information.

Third, macro risk includes political, cultural, and terrorism risks. This type of risk is linked to non-medical or exogenous factors. Its sources are related to the macro factors of medical tourism destinations, such as cultural similarities or differences, and political uncertainty.

Among these types of risks, it is predicted a fundamental risk occurs in advance of the expectation discrepancy risk. When physical risk arises, it causes functional, psychological, and social risks as a result. Then, a macro-risk occurs, which generates the possibility of incurring functional, psychological, and social risks. This study investigates fundamental and expectation discrepancy risks as these risks are most relevant to the medical tourism context.

### 3. Conceptual Framework and Hypotheses Development

#### 3.1. Conceptual Framework

Based on the importance of perceived risks in medical tourism, this study proposes the following conceptual framework (see Figure 2).

The conceptual framework explains antecedents and outcomes of perceived risks in a medical tourism context. This study suggests three different levels of factors as antecedents that influence medical tourists' perceived risks. They include macro (such as cognitive country image and affective country image), organizational (such as medical service quality), and personal factors (such as information search capability). These factors are expected to influence

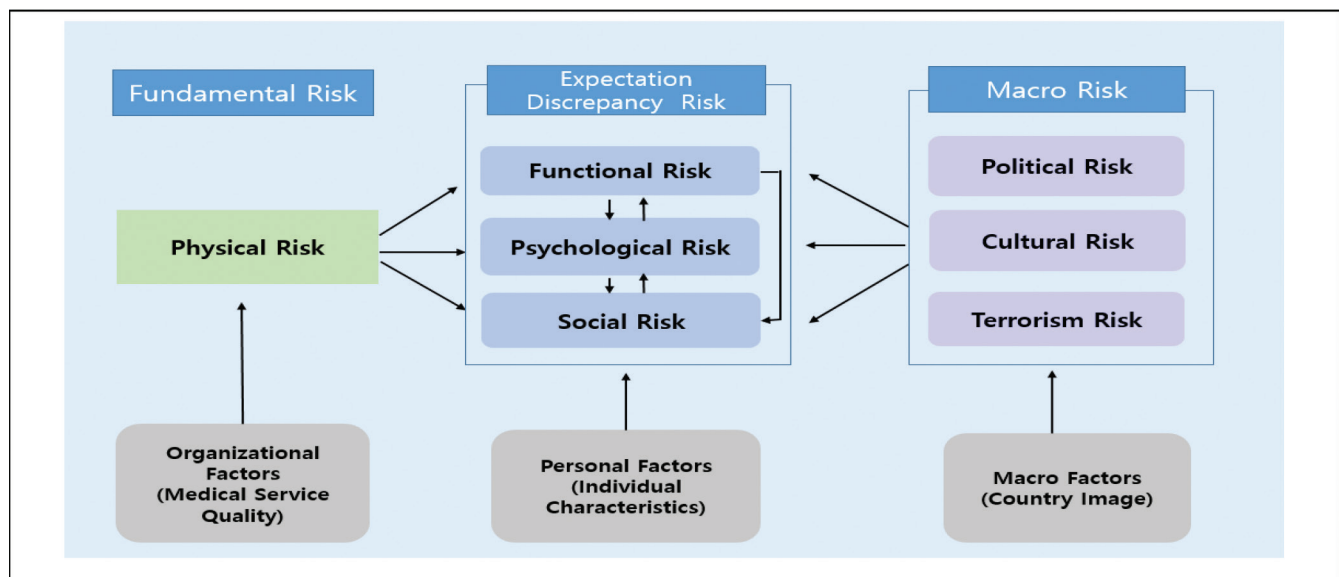


Figure 1: Classification of Perceived Risks and their Relationships

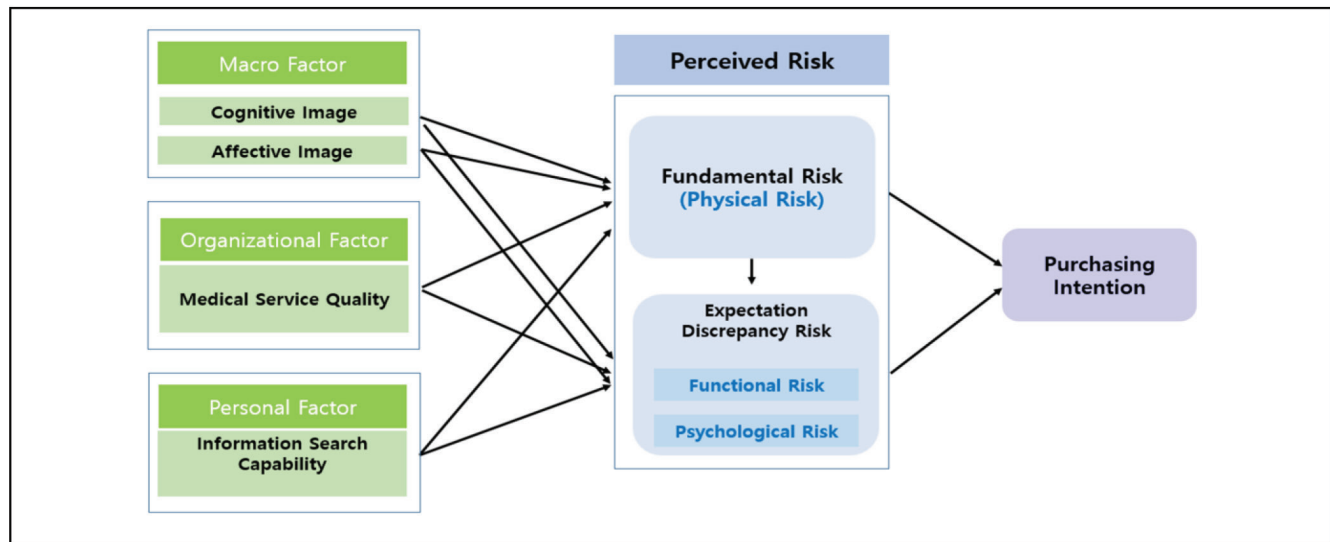


Figure 2: The Conceptual Framework

medical tourists' fundamental and expectation discrepancy risks, which further influence their purchase intentions regarding foreign medical tourism.

## 3.2. Hypotheses Development

### 3.2.1. Country Image as a Macro Factor

The country image captures the macro factor that influences medical tourists' risk perceptions in this study. Country image refers to a combination of perceptions or beliefs that people hold about a particular country. A country's image represents many elements, such as politics, economy, society, culture, history, geography, art, music, people, major events, and various other factors (Roth & Romeo, 1992). Country image influences tourists' purchase behaviors (Esiyok et al., 2017). The more positive a country's cognitive image, the higher the overall likelihood of its favorable impression. When medical tourists have a favorable impression about a country's economy, politics, culture, and society, they develop higher levels of credibility toward the country. This effect is explained through halo effects (Knight & Calantone, 2000). Halo effects are when the overall image of a country transfers to the quality of an individual product or service.

The country image consists of cognitive and affective dimensions. According to Roth and Diamantopoulos (2009), the cognitive dimension is related to an individual's beliefs and knowledge about a particular country. It consists of degrees of economic and technology development, political maturity, culture and tradition, geology, weather, and national features (capacity, creativity, living standards,

and technical expertise). The affective image is related to an individual's emotional response to a particular country. Uncertainty perceived by foreigners when they purchase medical services abroad is due to a lack of information on politics, economics, and culture about the country (Beladi et al., 2019). When prospective medical tourists hold a positive cognitive image of a country, it can offset uncertainty due to a lack of political, economic, or cultural information. Therefore, the perceived risk associated with purchasing a country's medical services would be low, mitigating the fundamental and expectation discrepancy risks regarding an anticipated medical service. Also, if a person's affective country image is positive, their overall impression of the country will be favorable. It is expected medical tourists are less likely to expect malpractice and expectation discrepancy risks in purchasing foreign medical services when they have positive, affective feelings or attitudes toward a country. Therefore, the following hypotheses are proposed:

**H1:** The positive cognitive image has a negative effect on the perceived fundamental risk of its medical services.

**H2:** The positive cognitive image has a negative effect on the perceived expectation discrepancy risk of its medical services.

**H3:** The positive affective image has a negative effect on the perceived fundamental risk of its medical services.

**H4:** The positive affective image has a negative effect on the perceived expectation discrepancy risk of its medical services.



### 3.2.2. Medical Service Quality as an Organizational Factor

Medical service quality captures an organizational factor that influences medical tourists' risk perceptions. Service quality is a measure of an individual's overall judgment or attitude towards the superiority of the service. It relies upon how well the level of service meets customer expectations. The SERVQUAL model (Parasuraman et al., 1988) is widely used in the service industry and is applied to measure the quality of medical services. For example, Handayani et al. (2015) utilized the dimensions of the SERVQUAL model to determine medical service quality. While the academic field of service uses the SERVQUAL model widely, it has been modified depending on the context of the study and the purpose of the research (Lopez-Toro et al., 2010). For example, Büyüközkan et al. (2011) examined medical service quality, including the level of medical staff, facilities and equipment, and the reputation of medical institutions.

Previous research in medical tourism has suggested that medical service quality is a significant factor influencing medical tourists' purchase decisions (Manaf et al., 2015). If medical tourists think a medical institution's service quality is high, they will purchase a medical service from that institution, as they expect to receive adequate treatment and satisfactory results (Han & Hyun, 2015). When tourists' perceived service quality is high, their risk perceptions associated with the medical treatment of that institution are expected to be low. When a medical institution's reputation is high, the expertise of the medical staff is competent, and its equipment advanced, medical tourists expect high service quality from the medical institution, which lowers the fundamental risk associated with the medical service. Thus, we expect a negative influence of medical service quality on perceived risks, proposing the following hypotheses.

**H5:** *The medical service quality has a negative effect on the perceived fundamental risk of its medical service.*

**H6:** *The medical service quality has a negative effect on the perceived expectation discrepancy risk of its medical service.*

### 3.2.3. Information Search Capability as a Personal Factor

Information search capability explains a personal factor that influences medical tourists' risk perceptions. Information search capability refers to an individual's skills or abilities to navigate information in an online environment (Rose & Samouel, 2009). Public or specialized websites and social network services (SNS)

are influential factors in purchasing medical services from foreign hospitals (Hwang et al., 2018). Medical institutions' websites or SNS provide information on previous medical tourists' experiences and opinions related to specific treatments and procedures. When prospective medical tourists have higher information search capabilities, they can gather information on medical services as well as macro-environmental information, such as politics, economy, society, and culture of destination countries.

Supported in the rational choice model, a medical tourist collects sufficient information on medical service quality, analyzes the benefits and costs of each service, and selects the best alternative based on optimization criteria. When prospective medical tourists are able to access abundant information through his/her information search capability, they are more likely to be confident in their decision, which lowers the perceived risks of medical institutions. Therefore, the following hypotheses are proposed.

**H7:** *Medical tourists' information search capability has a negative effect on the perceived fundamental risk of medical services.*

**H8:** *Medical tourists' information search capability has a negative effect on the perceived expectation discrepancy risk of medical services.*

### 3.2.4. Medical Tourists' Risk Perceptions

This study explores both fundamental risk and expectation discrepancy risk, which influence medical tourists' purchase behaviors. Fundamental risk arises from the lack of competence or malpractice of medical service providers, as well as outdated equipment or medical institution facilities. It is related to medical organization-related factors, which determine the medical service quality. Expectation discrepancy risk refers to a risk that a medical service may not be as effective as expected. Expectation discrepancy risk arises when an expectation variance is anticipated or felt by a medical tourist. Fundamental risk is a more comprehensive concept than expectation discrepancy risk because physical damage as a result of medical malpractice is the worst-case scenario. Fundamental risk is expected to influence expectation discrepancy risk. When the physical risk arises, it causes a functional, psychological risk as a consequence. Therefore, the following hypothesis is posited.

**H9:** *Medical tourists' perceived fundamental risk has a positive effect on their perceived expectation discrepancy risk.*

### 3.2.5. Medical Tourists' Purchase Intentions

Medical tourists' purchase intentions refer to their likelihood to use a medical service in Korea. It is important

to understand medical tourists' purchase intentions (Liang et al., 2019). Perceived risks associated with medical tourism are expected to lower medical tourists' purchase intentions (Fuchs & Reichel, 2010; Khan et al., 2017). Khan et al. (2017) identified negative relationships between perceived risks and the intention of international medical tourists. Na et al. (2017) also supported the negative relationship between perceived risks and medical tourists' intentions to visit Malaysia. Therefore, the following hypotheses are proposed.

**H10:** *Medical tourists' perceived fundamental risk has a negative effect on their purchase intentions.*

**H11:** *Medical tourists' perceived expectation discrepancy risk has a negative effect on their purchase intentions.*

## 4. Methodology

### 4.1. Survey Development

The survey for this study consisted of four sections. The first section gave a brief outline of the study's purpose and participants' rights. The second section included cognitive and affective country image, medical service quality, and information search capability measures. The third section included fundamental risk, expectation discrepancy risk, and purchase intention measures. The last section asked demographic questions. Measurement items were developed based on well-identified, prior research to ensure reliability and validity issues. All items were measured based on a 7-point Likert scale, ranging from 'strongly disagree' to 'strongly agree'. The survey was developed in Korean then translated to Chinese, following a translation and back-translation method (Brislin, 1970).

The cognitive country image was measured using five items: political, economic, cultural, relationship, and people images based on Bae et al. (2017) and Stylos, et al. (2016). Since the Korean Wave (the trend in which Korean pop, dramas, and culture are becoming popular worldwide) had a significant effect on forming Korea's global image, five items associated with the Korean Wave or culture were developed: a high level of Korean culture, a long history of nation and culture, and how sophisticated, creative, and competitive the Korean Wave is. The affective country image was measured using five items, including exotic–non-exotic, pleasant–unpleasant, lively–stagnant, relaxed–stressful, and favorable–unfavorable based on Stylos et al. (2016). The medical service quality was measured based on Manaf et al. (2015). It was measured with advanced medical technology, excellent medical doctors and staff, state-of-the-art medical equipment, and outstanding medical expertise. Information search capability was measured using four items developed for this research and based on Van Deursen

and Van Dijk (2010). These included being able to retrieve the necessary information at any time, having the better capability to use the Internet than others, being able to find and read other people's purchase reviews, and spending a lot of time networking through SNS.

The fundamental risk was measured using five items based on Laroche et al. (2004). Items included the likelihood of consequences after medical treatment such as physical harm, improper treatment of side effects, overall medical accidents, difficulties in handling grievances, and inadequate compensation for bodily damage and medical accidents. Expectation discrepancy risk was measured by six items developed for this study. Items included receiving improper medical services, receiving inadequate health services, receiving insufficient information, fear of receiving medical services, psychological unease, and unnecessary nervousness. Lastly, the purchase intention toward Korean medical tourism was measured using four items based on Agmeka et al. (2019). It includes Korea's high reputation as a medical tourism destination, favoring Korea as a medical tourism destination, choosing Korea for medical tourism, and recommending Korean medical tourism to others.

### 4.2. Study Procedures

The survey was pre-tested with a group of college students at a major university in China to check its reliability and validity. As Chinese people take the largest portion of foreign tourists in Korea as well as other Asian countries (Wang et al., 2021), the respondents were conveniently extracted from Chinese tourists entering and leaving the Inner Mongolia International Airport for one month, from March 10th to April 10th, 2019. A Ph.D. student whose hometown was Inner Mongolia conducted a local survey. Inner Mongolia achieved a relatively high level of economic growth and had relatively advanced medical facilities. Nevertheless, many people moved to large cities in China for medical treatment because of the lack of medical expertise. Inner Mongolia was an area with a high potential for strong medical tourism demands in Korea. Results of the pre-test confirmed the reliability of each construct and led to minor adjustments in wording in the survey. Expert reviews were conducted after the pre-test. Experts in the medical tourism field reviewed the survey and provided minor adjustments to the survey.

### 4.3. Data Collection

This study used a self-administered, paper-and-pencil survey form to test the proposed hypotheses. Respondents were asked to participate in the survey based on the convenience sampling method. The international airport was a gateway for entry and exit to Korea, and it was easy to secure questionnaires from Chinese people who had visited

Korea. Once respondents agreed to participate, they were asked to answer the questions in the survey. The survey was performed on Chinese tourists who had the experience of visiting Korea. Respondents who had visited Korea were qualified to participate. Chinese tourists were chosen because Chinese patients accounted for the highest portion of the 378,967 medical tourists in Korea at 31.2%, followed by American and Japanese tourists at 11.9% and 11.2%, respectively, as of 2018.

A total of 380 questionnaires were distributed, and 256 were collected. Subtracting 22 questionnaires with unsatisfactory responses, 234 questionnaires were used for empirical testing. Of the 234 participants in this study, 81 were male respondents (34.6%) and 153 respondents were female (65.4%). Reasons for staying in Korea were: 96 long- and short-term tourists (41%), 96 overseas education (41%), 7 business trips (3%), and 35 medical visits (15%).

## 5. Results

### 5.1. Data Analysis

An exploratory factor analysis was conducted to determine whether the measuring items were loaded correctly on their respective factors (Hair et al., 2006). Due to low factor loadings, six items were deleted for further analysis (one from cognitive image, one from affective image, one from information search capability, two from expectation discrepancy risk, one from fundamental risk, and one from purchase intention). The results of the reliability test and factor analysis were consistent with operational definitions of the key constructs of this study: cognitive image, affective image, medical service quality, information search capability, fundamental risk, expectation discrepancy risk, and purchase intention.

After initial analysis, the two-step approach - confirmatory factor analysis (CFA) and structural equation modeling

(SEM) by Anderson and Gerbing (1988) was applied to investigate the proposed relationships, using the AMOS software. The SEM was a highly suitable approach for this analysis because the relationship between the constructs could be simultaneously examined and holistically tested.

### 5.2. Preliminary Analysis

Results of confirmatory factor analysis (CFA) showed the chi-square statistics were statistically significant ( $\chi^2 278 = 419.156$ ,  $p < 0.05$ ) (Results of CFA are shown in Appendix A). The indices of the measurement model fit were acceptable ( $\chi^2/df = 1.508$ ; normed fit index (NFI) = 0.916; goodness of fit index (GFI) = 0.882; comparative fit index (CFI) = 0.970, root mean square error of approximation (RMSEA) = 0.047). Consequently, these results indicated that the model was well matched to the data (Bagozzi & Yi, 1988).

Discriminant validity was also checked in accordance with the suggestion of Fornell and Larcker (1981). The squared correlation between the key constructs was equal to or less than their average variance extracted (AVE); thus, discriminant validity was met in this study (see Table 1). The scales' internal reliabilities were not good, ranging from 0.596 to 0.774, which was over the threshold level of 0.60. Construct reliabilities ranged from 0.842 to 0.930. In sum, the methods for measuring the items and constructs were appropriate and provided valid and reliable measures.

### 5.3. Structural Equation Modeling

The country image consisted of a cognitive and an affective country image. Therefore, these two sub-dimensions were related to each other. When estimating the structural model, it was assumed that two latent variables (cognitive and affective country image) correlated and co-varied. A structural model was estimated using the AMOS

**Table 1:** Discriminant Validity ( $n = 234$ )

Latent Constructs	1	2	3	4	5	6	7	Mean (S.D.)
Cognitive Country Image (CCI)	0.808							5.399 (0.767)
Affective Country Image (ACI)	0.509	0.870						5.222 (0.921)
Medical Service Quality (MSQ)	0.557	0.510	0.878					5.305 (0.847)
Information Search Capability (ISC)	0.600	0.551	0.530	0.834				5.272 (0.803)
Fundamental Risk (FR)	-0.460	-0.620	-0.483	-0.488	0.772			2.836 (1.067)
Expectation Discrepancy Risk (EDR)	-0.546	-0.389	-0.412	-0.647	0.503	0.880		2.801 (0.813)
Purchase Intention (PI)	0.641	0.796	0.613	0.644	-0.564	-0.546	0.800	5.268 (0.782)

The values in boldface represent the AVE of the latent constructs and the values below the diagonal represent the squared inter-construct correlations.

software. The results from the structural analysis are shown in Figure 3. The analysis of the overall model provided an appropriate fit, as shown by the indices of the model fit ( $\chi^2_{287} = 739.4$ ,  $p < 0.05$ ;  $\chi^2/df = 2.577$ ; NFI = 0.851; CFI = 0.903; GFI = 0.798).

#### 5.4. Results of Hypotheses Testing

Table 2 shows the summarized results of hypotheses testing. The cognitive country image did not show significant effects on fundamental risk ( $\beta = -0.116$ ,  $p > 0.05$ ); thus, Hypothesis 1 was not supported. The cognitive country image was statistically significant and negatively associated with expectation discrepancy risk ( $\beta = -0.270$ ,  $p < 0.05$ ); thus, Hypothesis 2 was supported. As for the affective country image, it was statistically significant and negatively related to fundamental risk ( $\beta = -0.501$ ,  $p < 0.01$ ); thus, Hypothesis 3 was supported. However, the affective country image was not significantly related to expectation discrepancy risk ( $\beta = 0.123$ ,  $p > 0.05$ ); thus, Hypothesis 4 was not supported.

Medical service quality was statistically significant and negatively influenced fundamental risk ( $\beta = -0.196$ ,  $p < 0.01$ ), supporting Hypothesis 5. However, medical service quality was not significantly related to expectation discrepancy risk ( $\beta = -0.009$ ,  $p > 0.05$ ); thus, Hypothesis 6 was not supported. Moreover, medical tourists' information search capabilities were not significantly related to fundamental risk ( $\beta = -0.065$ ,  $p > 0.05$ ); thus, Hypothesis 7 was not supported. On the other hand, information search capability was statistically significant and negatively associated with

expectation discrepancy risk ( $\beta = -0.501$ ,  $p < 0.01$ ), thus Hypothesis 8 was supported.

As predicted, fundamental risk influenced expectation discrepancy risk ( $\beta = 0.281$ ,  $p < 0.01$ ), supporting Hypothesis 9. As outcomes of risk perceptions, the fundamental risk was statistically significant and negatively related to purchase intention ( $\beta = -0.403$ ,  $p < 0.01$ ), supporting Hypothesis 10. Additionally, expectation discrepancy risk was also statistically significant and negatively related to purchase intention ( $\beta = -0.347$ ,  $p < 0.01$ ); thus Hypothesis 11 was supported.

#### 6. Discussion

This study investigated factors that influenced medical tourists' perceived risks using multi-level approaches, including macro, organizational, and personal factors. This study also investigated how fundamental risk and expectation discrepancy risk influenced medical tourists' purchase intentions. Eleven hypotheses were empirically tested on Chinese tourists who had visited Korea. Among the eleven proposed hypotheses, six hypotheses (H2, H3, H5, H8, H9, H10, and H11) were supported; however, four hypotheses (H1, H4, H6, and H7) were not supported.

Cognitive and affective country images were investigated as a macro factor that influenced medical tourists' risk perceptions (Chang & Kim, 2012). The cognitive country image did not influence fundamental risks (H1); however, it negatively influenced expectation discrepancy risks (H2). Affective country image negatively influenced fundamental risks (H3), but it did not influence expectation

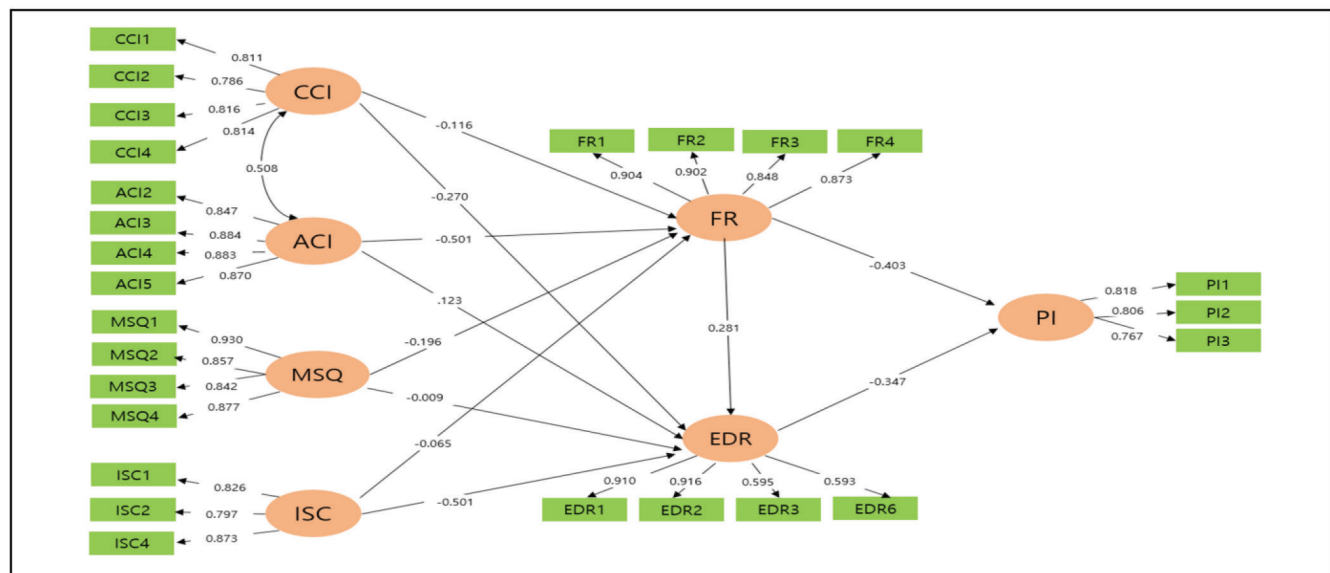


Figure 3: The Result of Structural Equation Analysis



**Table 2:** Results of Hypothesis Testing ( $n = 234$ )

Hypothesis	Standardized Path Coefficient ( $\beta$ )	t-value	Test Result
H1: FR $\leftarrow$ CCI	-0.12	-1.612	Not Supported
H2: EDR $\leftarrow$ CCI	-0.27***	-3.648***	Supported
H3: FR $\leftarrow$ ACI	-0.50***	-6.781***	Supported
H4: EDR $\leftarrow$ ACI	0.12	1.512	Not Supported
H5: FR $\leftarrow$ MSQ	-0.20***	-3.355***	Supported
H6: EDR $\leftarrow$ MSQ	-0.01	-0.158	Not Supported
H7: FR $\leftarrow$ ISC	-0.07	-1.074	Not Supported
H8: EDR $\leftarrow$ ISC	-0.50***	-7.585***	Supported
H9: EDR $\leftarrow$ FR	0.28***	3.620***	Supported
H10: PI $\leftarrow$ FR	-0.40***	-5.664***	Supported
H11: PI $\leftarrow$ EDR	-0.35***	-4.870***	Supported

Note: \*\* $p$ -value < 0.05; \*\*\* $p$ -value < 0.001. Significant at the 0.05 level.

discrepancy risk (H4). Medical service quality negatively influenced fundamental risk (H5); however, it did not influence expectation discrepancy risk (H6). Information search quality did not influence fundamental risk (H7), but it negatively influenced expectation discrepancy risk (H8). Affective country image and medical service quality played important roles in influencing fundamental risk perceptions. On the other hand, cognitive country image and information search capability played a key role in influencing expectation discrepancy risks.

Results were understandable as the fundamental risk was more severe than the expectation discrepancy risk. If the fundamental risk occurred, a tourist might suffer damage caused by malpractice, inappropriate treatment, or medical technology. Accordingly, it was expected a prospective medical tourist would have more convincing information before purchasing medical tourism services. To lower fundamental risks, medical service quality should be met. Relatively, expectation discrepancy risk was less serious when compared to fundamental risks. Thus, prospective medical tourists could lower their perceptions through information search capabilities. The fundamental risk was greatly influenced by factors related to medical service quality. Expectation discrepancy risk was predominantly influenced by individual factors such as information search capability.

Results identified high fundamental risk aroused a high expectation discrepancy risk (H9). Hence, fundamental risk influenced expectation discrepancy risk in the order of risk occurrence. Consistent with prior research (Khan et al., 2017; Fuchs & Reichel, 2010), our empirical findings supported the negative impact of fundamental risk and expectation

discrepancy risk on medical tourists' purchase intentions. To attract more tourists, perceived risks should be lowered.

## 7. Conclusion

### 7.1. Theoretical Implications

Results of this study contributed to current medical tourism research, the formulation of attraction strategies, and the sustainable development of Korean medical tourism. First, this study proposed a conceptual framework that proposed a comprehensive overview of the risk perceptions in a medical tourism context. Differing from prior research that showed a list of perceived risks, this study investigated antecedents and outcomes of perceived risks to create a comprehensive understanding of the perceived risks in medical tourism.

Second, this study examined macro, organizational, and personal factors that influenced medical tourists' perceived risks. A holistic approach must be taken when studying factors that influenced perceived risks. For example, a physical risk arose when medical service quality, provided by a medical institution or staff member, fell short of a patient's expectations. Thus, its source was associated with the organizational aspects of medical institutions. On the contrary, a cultural or a political risk was closely related to the cultural differences or political instability of a country in which medical service is provided. The sources of these risks were associated with the macro factors of a country.

Third, a relation between the risks was examined. This study investigated perceived risks, including fundamental risks and expectation discrepancy risks that influenced

medical tourists' purchase intentions. The empirical analysis showed high fundamental risk led to a high expectation discrepancy risk. The fundamental risk was expected to affect the expectation discrepancy risk.

## 7.2. Managerial Implications

Results provide implications for promoting medical tourism. By identifying factors that influence medical tourists' perceived risks, different strategies can be developed based on macro factors, organizational factors, and personal factors. The long-term sustainability of medical tourism should take a holistic approach, requiring commitment from the country, medical institutions, and tourism managers (Suess et al., 2018). Our study confirms the importance of macro, organizational, and personal factors on perceived risks in the context of medical tourism. As prior research underlines the importance of purchase behavior for generating medical tourism business, we emphasize the need for lowering fundamental and expectation discrepancy risks to promote medical tourism.

First, the cognitive country image should be enhanced to lower medical tourists' expectation discrepancy risk. The affective cognitive image should also be enhanced to lower fundamental risk. To lower medical tourists' risk perceptions, a country should maintain economic, political, and social conditions; and a country should develop favorable images to foreigners. Second, medical service quality should be communicated to lower fundamental risk. Medical service quality should also be sustained to attract more tourists. To provide high-quality medical services, hospital staff and local authorities need to work together to create smooth and pleasant customer experiences.

Third, information search capability should be provided to lower expectation discrepancy risk. Country and medical service quality information should be communicated with medical tourists through various communication platforms, such as websites, mobile messenger, and social media. If medical tourists are able to access and gather more information about the country and medical institutions, their anxiety and risk perceptions may lower, which would enhance their purchase intentions. When communicating medical services to tourists, correct and honest information should be shared. Different campaigns can also be created to target different market segments and audiences.

## 7.3. Suggestions for Future Research

Even though this study contributes to medical tourism literature it entails limitations, which suggest the need for future research. First, this study was an exploratory study, which investigated different factors that influenced

medical tourists' two types of risk perceptions. Future studies should examine more comprehensive risks perceptions.

Second, data was collected based on a self-administered survey. Due to the nature of a field study, the sample size was limited. The study context was also limited to Korea and responses were only gathered from Chinese tourists who had visited Korea and lived in the area of Inner Mongolia. Different study contexts could be used to enhance the generalizability of the study's findings.

Third, this study was conducted based on a self-administered, transactional survey. Since risk perceptions may change based on tourists' experiences and time, future research should take a longitudinal approach to investigate how risk perceptions change. Last, to better understand customers' purchase behavior in the medical tourism context, personal and situational variables could be investigated in the conceptual model. For instance, moderators, such as frequency of visits (Fuchs & Reichel, 2011), could be included in the conceptual model to better predict medical tourists' purchase behaviors.

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#### Appendix A: Measurement Model Constructs (n = 234)

Constructs	Mean	S.D.	CFA	$\alpha$	CR	AVE
Cognitive Country Image (CCI)				0.88	0.88	65.22
Korea has a high level of culture and art (CCI1)	5.36	0.859	0.81			
Korea has a long history of nation and culture (CCI2)	5.29	0.942	0.79			
The Korean wave is sophisticated (CCI3)	5.42	0.847	0.82			
The Korean wave is creative (CCI4)	5.52	0.927	0.81			
Affective Country Image (ACI)				0.93	0.93	75.71
Korea is lively — stagnant (ACI2)	5.25	0.984	0.85			
Korea is pleasant — unpleasant (ACI3)	5.21	1.066	0.88			
Korea is relaxed — stressful (ACI4)	5.24	0.986	0.88			
Korea is favorable — unfavorable (ACI5)	5.19	1.032	0.87			
Medical Service Quality (MSQ)				0.93	0.93	77.11



**Appendix A:** (Continued)

Constructs	Mean	S.D.	CFA	$\alpha$	CR	AVE
Korean hospitals have advanced medical technology (MSQ1)	5.30	0.921	0.93			
Korean hospitals have excellent medical doctors and staff (MSQ2)	5.38	0.930	0.86			
Korea hospitals have state-of-the-art medical equipment (MSQ3)	5.25	0.930	0.84			
Korean hospitals' medical expertise is outstanding (MSQ4)	5.28	0.952	0.88			
Information search capability (ISC)				0.87	0.87	69.53
I can retrieve the necessary information at any time through the Internet (ISC1)	5.31	0.875	0.83			
I have a better capability to use the Internet than others (ISC2)	5.27	0.875	0.80			
I spend a lot of time networking through SNS (ISC4)	5.23	0.948	0.87			
Fundamental Risk (FR)				0.93	0.85	59.57
If I undergo medical treatment in Korea, there will be a risk of sequelae, such as physical harm (FR1)	2.81	1.143	0.91			
If I undergo medical treatments in Korea, it will be difficult to properly manage the side effects in Korea (FR2)	2.78	1.164	0.92			
Korea has a high risk of medical accidents from medical procedures (FR3)	2.82	1.120	0.60			
I will have difficulties in handling grievances in the event of a medical accident in Korea (FR4)	2.93	1.248	0.59			
Expectation Discrepancy Risk (EDR)				0.84	0.93	77.49
I will not receive proper medical services in Korea (EDR1)	2.82	1.006	0.90			
I will not receive adequate health services in Korea (EDR2)	2.81	0.959	0.90			
I will not receive the necessary information from medical staff in Korea (EDR3)	2.71	0.968	0.85			
I will experience unnecessary nervousness in receiving medical services (EDR6)	2.86	1.035	0.87			
Purchase Intention (PI)				0.84	0.84	64.05
Korea's reputation as a medical tourism destination is high (PI1)	5.27	0.870	0.82			
I am favorable of Korea as a medical tourism destination (PI2)	5.28	0.8926	0.81			
If I go to medical tourism, I will choose Korea (PI3)	5.25	0.935	0.77			

All variables are measured on a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree); CFA = Confirmatory factor analysis standardized item loadings; AVE = Average variance extracted based on CFA; CR = Composite reliability bas on CFA.